**Africa RISING-Malawi farming systems and modelling workshop**

**Salima, Lake Malawi, July 29 –August 1**

**Workshop background**

Understanding the farming systems we work in and applying decision support tools, including models, is fundamental towards advancing the link between concepts and reality. There is an increased recognition that a ‘systems approach’ is needed to meet the challenges presented by the highly heterogeneous and complex smallholder farming systems in Africa. Experimental approaches that are participatory in nature, are increasingly producing empirical evidence on the performance of agricultural intensification technologies with the most relevance to local farming communities. Effort must therefore be put to document the approach, including the rich experiences in formats that can make replication across space more rapid. This workshop is aims to enhance our understanding of farming systems and associated intensification technologies through coupling experimental data with simulation modelling approaches for complex/heterogeneous environments.

The workshop will review current knowledge, and focus on the case study of Africa RISING – Malawi approach, linking mother and baby participatory on-farm experimentation with modelling to support extension education and farmer innovation. Opportunities will be provided to review state of the art findings and to explore how to scale out participatory action research. Key objectives/questions to be addressed during the workshop include:

* Best-bet options and technologies that support integrated nutrient management, modern crop varieties, organic matter technologies, and judicious combinations with targeted fertilizer and other inputs – review of findings from the region and case studies in Malawi
* Moving beyond the descriptive and exploratory phase - what are the technologies with the best chance for changing livelihoods on smallholder farms?
* What are the key tactical/practical planning and decisions facilitated through modeling that have been sufficiently successful in driving sustained agricultural intensification pathways? (presentation of case studies e.g use of the NUTRIENT Expert model with maize, APSIM)
* Early plans for year 2- what are the missing links and how do we strengthen our contribution to Africa RISING agenda in Malawi? - this feeds into the September 3-5 ESA workshop

**Draft program**

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| **Session and time** | **Activity** | **Presenter** |
| **Day1** – Agro-ecology intensification |  | Regis Chikowo Chair |
| Introductions |  |  |
| Workshop opening speech |  | Program Manager from Extension? |
| Technologies background (ICRAF review of agroforestry & integrated nutrient management)  Best bets in Malawi  Participatory action research and extension approaches | Presentations | Sileshi - ICRAF  George Kanyama-Phiri - LUANAR  Sieg Snapp |
| **Afternoon**- Overview of Africa RISING-Malawi (Chair – IITA scientist)  Initial findings:  Approach/Inference zones  Farming system practices  Agronomy  Farmer evaluation of best bets  Soil status |  | Regis  Michelle  Edward  Wezi  Desta - CIAT |
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| **Day 2**  **Morning**  Planning activities (two tracks, research and extension?) for season two Africa RISING |  |  |
| Review of best bets, expanding options |  |  |
| Participatory action research - Soil Food and Healthy Communities experiences  Exercises – promote discussion of approaches  **Afternoon**  Introduction to modelling principles |  | Lizzie Shumba  Regis,  Sileshi |
| **Day 3**  Crop growth modelling/systems analysis |  |  |
| Modelling by first principles  Systems, models and simulation  Basic elements of dynamic simulation  - Examples  Crop growth modelling (key variables)  Hands on practice with Nutrient Expert model  Modelling approaches (Dr Joe Messina: Epidemiology example from Kenya);  Conservation agriculture and climate adaptation |  | Regis  Sileshi  Regis/Shamie Zingore  Joe Messina - MSU  Regis |
|  |  |  |
| **Day 4**  **(Morning )** Linking farmer participatory to crop simulation modelling |  | Alex |
| Planning modelling and systems analysis activities on Africa RISING  **Lunch and travel back to Lilongwe** |  | Regis |
| (***Afternoon – core team)***  Future activities: Planning to feed into the ESA September 3-5 workshop |  | Regis/Sieg/Wezi/Nyoka/Desta/Sileshi |